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19. Miscellaneous resins.

Several trees, such as the "Kok-Mai-Niang, Kok-Mai-Tabeng, [Illustration here] Kok-Mai-Sak" (1), etc., yield an oleo-resin which,

(1) See Appendix XX.

when mixed with paddy husks, is used to make torches and a siccative, shiny extract which is called "Nam-Mane-Niang," and again a kind of pitch (Khi-Si) which is used to caulk pirogues and to smear various basketwork receptacles so as to make them watertight. It is similar to damarine.

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The production of these resins is limited to local needs.

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20. Black lacquer.

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The black lacquer of Laos is a natural black varnish, thick and [343] solid, which is called "Nam-Kieng." It is secreted by the "Kok-Mai-Nam-Kieng."

Nam-Kieng is used to lacquer racing pirogues, elephant palanquins, pagoda columns and statues, frames, receptacles of different kinds, sword sheaths, etc. The lacquer producing trees grow only in certain localities, and the varnish is not exported. Its price varies throughout the land between 62 and 75 francs per hundred kilograms. [435]

It would be of interest to identify this lacquer with that of Japan, and to study the question as to whether it might not be possible to increase the number of trees which produce it with a view towards making it the basis of an export trade, at least to the countries bordering on Laos.

21. Cunao (the mock gambier, Mak-Soua in Laotian).

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The cunao is a brownish tubercle used instead of catechu, the color of which it has, for dyeing cloth. It is found in Cammon, in a part of the Hua-Pahn and on the right bank of the Nam-Hou. This 386 product is bought mainly by Annamites and Chinese, who use it in Annam and Tonkin for dyeing the peasants' work clothes.

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Mai-nam-kieng	Cai-son (Annamite) Dom-crul (Cambodian) Melanorrhea laccifera (varnish-tree)			Yields a fine black varnish similar to lacquer. Would be suitable for cabinet work.			Lower Laos	Red wood, reminiscent of Brazilian rosewood. Very rare. Does not last under moist conditions.

B. TREES WITH WOOD SUITABLE FOR CABINET WORK

Mai-Niompha	Mock mahogany	30	.6 to .7	Furniture, boards. Resembles the mahogany of Florida or Texas, used for cigar boxes.	Yes	Valleys and banks of water-courses	Lower Laos Upper Laos	Very beautiful soft-wood, pink in color. Fairly plentiful. Floats.
Mai-pouei or Mai-pouei-kien	Cai-bang-lang (Annamite) Lagerstroemia (?)	30	.6 to 1	Furniture, fine boards.	Yes	Thick forest	Lower Laos	White wood with slight gray tinge, not very resistant, fine grain. Very plentiful. Lasts about ten years, does not withstand rain.
Mai-thon	Cai-lim (Annamite) Mock walnut	30	.5 to .6	Boards, fine cabinet work.	Yes	Valleys and banks of water-courses	Lower Laos Upper Laos	Very beautiful brown wood, veined like the walnut which it resembles although darker. Very long life. Very plentiful. Very well-grown tree.

[Table continued over]

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Mai-kha-chom	Cai-trat (Annamite)	15 to 25	.5 to .6	Furniture, boards, pirogues.	No	Forest glades	Lower Laos	Resistant wood, slightly yellowish, fine grain, quite light, well-grown. Rather scarce. The tree bears very odoriferous yellow flowers.
Mai-lang-dam	Cai-mun (Annamite) Don-hayean (Cambodian) Diospyros ebenum Ebony	10 to 15	.3 to .4	Good for cabinet work. House traverse beams. Its fruit is used to make a black dye.	No	Thick forest	Lower Laos	Hardwood, black, heavy, non-floating, small, resembles ebony. Lasts about seven years. Plentiful.
[114-115]								
Mai-deng	Cai-huong (Annamite)	25	.6 to .7	Columns and posts for houses and pagodas. Furniture.	No	Forest glades	Lower Laos	Resistant, red, very well-veined wood. Highly esteemed, hard, difficult to work. Resembles rosewood somewhat. Very well-grown tree, well-known to the Laotians, plentiful.
Mai-te	Cai-go (Annamite) Grandifera cochinchinensis	30 to 50	.6 to .7	Columns for houses and pagodas. Boards.	No	Forest glades	Lower Laos	Very hard wood, mahogany yellow, fine grain. Unlimited life. Plentiful. Edible fruit.

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Mai-dou or Mai-dou-khao	Cai-hoi-moc (Annamite)	30	.7 to .8	House columns, furniture, chests, cart axles.	No	Thick forest	Lower Laos Upper Laos	Beautiful, very hard wood, slightly reddish, very well-veined; reminiscent of the thuja. Quite hard to work. Unlimited life. Plentiful.
Mai-pan-sat		20 to 35	.8	Very fine planks and columns.	No	Valleys and banks of water-courses	Lower Laos	Very hard wood, difficult to work.
Mai-khen-kin	Cai-sao-da (Annamite) Hopea (?)	30	.4	Very fine columns and traverse beams.	No	Thick Forest	Lower Laos	Very beautiful, very hard wood, highly resistant, yellowish in color, very heavy. Life would be unlimited. Plentiful.
Mai-ed	Dom-khnor-prey (Cambodian) Nauclea orientalis (?) Jack-tree	10	.4	Columns, furniture and boxes. The bark is used for dyeing bonzes' clothing yellow.	No	Valleys and banks of water-courses	Lower Laos Upper Laos	Very pretty light wood, yellowish in color. Quite easy to work. Floats when dry. Noted especially for its fruit.
Mai-bok-khai			.9 to 1	Not used by the Laotians, the grain being too hard for their tools. Ought to make fine boards.		Forest glades	Lower Laos	Hardwood, whitish-yellow in color. Very well-grown. Plentiful.

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Mai-kha-nieung	Cai-trac (Annamite) Dom-cranhung (Cambodian) Dalbergia (?)	15 to 20	.5 to .6	Used for cart axles and in the wheelwright's trade. Would be a good wood for cabinet work.	No	Thick forest	Lower Laos Upper Laos	Very hard wood, dark red veined with black, like the Brasilian rosewood. Unlimited life. Rather scarce. Respected by the Laotians because almost impossible to work with their tools.
Mai-pouei-lai	Cai-bang-lang (Annamite) Lagerstroemia (?)	30 to 40	1.5	Interior woodwork, furniture.	No	Low mountains, valleys	Upper Laos	Beautiful hardwood, gray with wavy veins like the maple. Medium in color between the ash and the beech. Difficult to work, gives a striking effect under varnish.
Mai-kan-luong		17 to 18	.6	Furniture and framing. Very good for woodworking.	No	Beside water	Upper Laos	Hardwood, yellow, good grain, easy to work.
Mai-som		16 to 17	.3 to .4	Furniture and framing.	No	Beside water	Upper Laos	White wood, straight grain, easy to work, quite plentiful.
[116-117] Mai-kha		24 to 25	.4 to .5	Furniture, framing, posts.	No	Large forests	Upper Laos	Hardwood, red heartwood; difficult to work; plentiful.
Mai-ka-bok	Dom-kaka (?) (Cambodian) Sindora sumatrana (?)	18 to 19	.3 to .4	Used for turned pieces and long-lasting items.	No	Same	Upper Laos	Hardwood, brown with reddish reflections, fairly easy to work; very beautiful when polished.

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Mai-sak	Dom-mayaac (?) (Cambodian) Tectona grandis Teak	30 to 40	.8 to 1.2	Framing, woodworking, cabinet work, boatbuilding.	No	Mountainsides and valleys	Upper Laos	Easy to work, reddish beautiful close grain, very well-grown, rotproof, floating. Edible fruit; sometimes replaces the betel nut in the betel masticatory.
Mai-khao-khvai				Excellent posts	No	Hillsides and valleys. Thick forests.	Upper Laos	Hardwood, fine grain, unlimited life.
Mai-tchoueng or Mai-kioueng				Cabinet work.	No	Hillsides and valleys	Upper Laos	Wood which has the perfume of sandalwood. Used to make statues of Buddha.
Mai-dou-deng	Service tree (?)	30 to 35	1.5 to 1.8	Posts, pirogues, tools.	No	Mountainsides and valleys. Thick forest	Upper Laos	Excellent hardwood, with the look and qualities of the service tree, that is to say reddish brown with fine grain. Very well-grown, plentiful, fairly easy to work. Unlimited life.
Mai-sakhan		20 to 25	.5	Posts, framing, boards.	No	Low slopes and valleys	Upper Laos	Good red wood, straight grain, quite scarce, easy to work.

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Mai-fene		25 to 30	1.2	Posts	No	Valleys	Upper Laos	Good wood, fairly difficult to work, much sought-after, rather scarce, long life.
Mai-kha-bioung		18 to 20	.25 to .35	Posts, framing.	No	Large Forests	Upper Laos	Hardwood, white, quite difficult to work, quite plentiful.

C. MISCELLANEOUS TREES

Mai-khan-hok		30 to 35		Boards, traverse beams, laths.	No	Thick forest	Lower Laos	Hardwood, white with black heartwood, plentiful on the plateau of the Bolovens; edible fruit.
Mai-khen	Cai-sao (Annamite) Dom-kaki (Cambodian) Hopea spuria (?)	.3 to .4	1 to 1.5	Used mainly in the construction of pirogues.	No	Thick forest	Lower Laos Upper Laos	Semi-hard wood, with beautiful fibers of a yellow color, very well-grown. Water-resistant. Lasts 12 to 15 years.
Mai-hang	Cai-sen (Annamite) Vatica (?)			Columns and mediocre traverse beams.	Yes	Forest glades	Lower Laos	Greatly resembles the Mai-khen-hin, but is neither as resistant nor as highly esteemed; unlimited life.
[118-119] Mai-tab-tao		10	.4 to .6	Mediocre traverse beams, very little used in building.	Yes	Forest glades	Lower Laos	Soft wood, yellowish in color, quite well-grown, little used, quite light; plentiful.

[table continued over]

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Mai-tiou		12	.5 to .6	Same as above.	Yes	Forest glades	Lower Laos	Very soft wood, white, slightly grayish, of inferior quality, cannot withstand rain; fine grain; well-grown tree. Lasts about 7 years.
Mai-koung		15	.6 to .8	Boards and traverse beams. The dried leaves are used to make pirogue roofs and partitions for Laotian houses.	Yes	Forest glades	Lower Laos	Fairly hard wood, slightly reddish, well-grown; plentiful.
Mai-kha-thang		25 to 30	.25 to .3	Beams	Yes	Forest glades	Lower Laos	Hardwood, slightly yellowish, plentiful, quite well-grown.
Mai-tong		35	.5	Coffin planks.	Yes	Forest glades	Lower Laos	Softwood, white, acid fruit; plentiful.
Mai-keng-seng		15	.6	Planks, studs for partition walls and doors.	Yes	Valleys and banks of water-courses	Lower Laos	Softwood, heartwood dark red; plentiful in the valleys.
Mai-man-pa		15	.25	House columns.	No	Thick forest	Lower Laos	Hard and resistant wood, grayish-yellow, fairly easy to work; plentiful, unlimited life.
Mai-hat	Cai-xnai (Annamite)	25	.4	Wooden bells, mediocre traverse beams and columns; little used in building.	No	Valleys and banks of water-courses	Lower Laos	Rather unresistant, yellowish-white wood; plentiful, unlimited life.

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Mai-mok		.2 to .25			Forest glades	Lower Laos	Slightly yellowish wood, light, with fine grain; dwarf tree, bears large yellow flowers which are very odoriferous.
Mai-seng-kham		.5 to .6	Bark used by the Laotians for chewing with betel.		Forest glades	Upper Laos Lower Laos	Yellowish wood with quite fine grain; well-grown tree; not very plentiful.
Mai-si		.3 to .4			Forest glades	Lower Laos	Slightly grayish wood, quite close-fibered; well-grown tree; not very plentiful.
Mai-lieng		.6 to .7	Used only for making plowshares.	No	Thick forest	Lower Laos Upper Laos	Hard, knotty, red, rather dark wood; difficult to work with an ax, does not grow straight; not very plentiful; unlimited life.
Mai-souek		.6 to .7		No	Thick forest	Lower Laos	Very hard wood, very dark reddish-gray in color, well-veined, difficult to work; very well-grown tree.
[120-121]							
Mai-lam-sing		1 to 1.2		No	Valleys and beds of water-courses	Lower Laos	Hardwood, dark red, close-grained, difficult to work; well-grown tree; quite plentiful.

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Mai-seng	Dom-khleng-cong (Cambodian) Strychnos nux-vomica		.5 to .6	Its wood, roots and leaves, with the exception of the pulp of its fruit, are used as a remedy against fever and snake bite.	No	Valleys and banks of water-courses	Lower Laos	Very hard wood, slightly whitish, difficult to work; well-grown tree, its seed is the nux vomica; not very plentiful.
Mai-som-hong		20 to 25	.9 to 1		No	Valleys and banks of water-courses	Lower Laos	Slightly grayish wood, difficult to work, cannot withstand rain; well-grown tree; not very plentiful.
Mai-lek	Vap (Annamite) Mesua ferrea (?)	20 to 25	.6 to .9	Railway ties. Piles for wharfs.	No	Thick forest	Lower Laos	Ironwood, very hard, mahogany in color.
Mai-thom-da		20 to 25	.6 to .8		No	Thick forest	Lower Laos	Very tall tree with blond heartwood. It is sought-after by the bonzes, who use it to make steeples.
Mai-khao		18 to 20	.5 to .6	Boards, framing.	Yes	Thick forest	Lower Laos	White wood of inferior quality; lasts about five years.
Mai-niou	Oai-gon (Annamite) Dom-cor (Cambodian) Bombax and Calotropis Mock cotton	15 to 20	.6 to .8	Not used as wood.	Yes	Banks of water-courses	Lower Laos	Quite unresistant wood. The tree yields cotton of excellent quality. It grows rapidly, and is very common.

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Mai-pedoung		20 to 25	.8 to 1	Paneling.	No	Thick forest	Lower Laos	Beautiful wood, purplish-red heartwood, blackens upon exposure to air.
Mai-ka-sam		25	1	Building wood.	No		Lower Laos	Hard and resistant wood, resembles the Mai-tabeng; plentiful; unlimited life.
Mai-bi-mui		18 to 20	.6 to .8	Framing.	Yes		Lower Laos	Wood of inferior quality, hard but not very resistant, red in color; lasts from 6 to 10 years.
Mai-khai-so		18 to 20	.6 to .8	Framing.	Yes		Lower Laos	Wood of inferior quality, hard but not very resistant, red in color; lasts for seven years.
Mai-nga-loi		15 to 18	.5 to .6	Interior woodwork.	Yes		Lower Laos	White wood, of inferior quality; lasts for 5 to 6 years.
Mai-sisiet	Catechu Acacia catechu	30	1.3	The bark alone, which forms catechu, is used for chewing with betel.	Yes	Valleys and low slopes	Upper Laos	The wood is good only for burning.
[122-123] Mai-kok-sa		8	.25 to .35	The bark alone is used in making a very resistant paper.	Yes	Valleys	Upper Laos	
Mai-so		30	1.5	Framing and mediocre woodwork.	No	Low mountains and valleys	Upper Laos	Hard wood, fairly good, very light; not very plentiful.

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Mai-hiene		30	.8	Framing, posts, mediocre woodwork.	Only after ten years	Low slopes and valleys	Upper Laos	Good wood, straight grain; not very plentiful; very straight tree.
Mai-ka-kalang		25 to 30	.5 to .6	Posts and framing.	Yes	Low slopes and valleys	Upper Laos	Soft, reddish wood, easy to work; plentiful.
Mai-sa-ke		14 to 15	25 to 30	Used to make charcoal. Also used for short-lived projects.	Yes	Low slopes and valleys	Upper Laos	Softwood, white, good grain; plentiful.
Mai-li				Posts and columns			Upper Laos	Very hard wood, difficult to work.